# EUROGRAPHICS

**EG 79**

# INTERNATIONAL CONFERENCE AND EXHIBITION

**PALAZZO DEI CONGRESSI - BOLOGNA - ITALY**
**25-27 OCTOBER 1979**

SPONSORED

## ACM ITALIAN CHAPTER

IN COOPERATION WITH

## ACM SIGGRAPH

**SPECIAL INTEREST GROUP ON GRAPHICS**
**OF THE ASSOCIATION FOR COMPUTING MACHINERY**

## ECI

The European Co-operation in Informatics, formed by Association Française pour la Cybernétique, Economique et Technique (AFCET), Associazione Italiana per il Calcolo Automatico (AICA), British Computer Society (BCS), Gesellschaft für Informatik (GI), Nachrichtentechnische Gesellschaft im VDE (NTG), Netherlands Genootschap voor Informatica (NGI).

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## PRE CONFERENCE SHORT COURSES

### COMPUTER GRAPHICS TODAY

presented by Bertram Herzog and Carl M[...]

**22-24 OCTOBER 1979**
GRAND HOTEL ELITE
Via Saffi, 36
40131 Bologna, Italy
Tel. (051) 437417 Telex 510067

### DATA BASES AND DATA STRUCTURES FOR CAD GRAPHICS

presented by Frank M. Lillehagen and Ernest A. Warman

**23-24 OCTOBER 1979**
GRAND HOTEL ELITE
Via Saffi, 36
40131 Bologna, Italy
Tel. (051) 437417 Telex 510067

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## INTENSIVE SEMINAR

### MANAGEMENT CONSIDERATIONS IN BUYING GRAPHICS EQUIPMENT
**COST PERFORMANCE TRADE-OFFS**

presented by Carl Machover

**24 OCTOBER 1979**
ROYAL HOTEL CARLTON
Via Montebello, 8
40121 Bologna, Italy
Tel. (051) 554141 Telex 510356

# COMPUTER GRAPHIC TODAY
Registration: 8.30 - 9.00 a. m. Monday 22 October 1979

## HARDWARE TOPICS

**New low cost terminals**
Digital TV - Scan Converter - Refresh - Plasma - DVST

**New low cost plotters and digitizers**
Graphic tablet - Digital plotter - Electrostatic plotter

**The effect of the micro-processor**
Smarter display processor units - Intelligent digitizers - Versatile electrostatic plotters - Digital scan converters - Stand-alone systems

**Mixed media computer graphics**
Combined storage and refresh terminals - Combined plotters and digitizers - Interactive plotters

**New interest in colour**
Low cost TV - Projection TV - Penetration - Matrix - Plotters - Film recording

**More realistic images**
Shaded graphics - Improved picture manipulation - 3-D display techniques - Animation

**Emulation - computer graphics flattery**
IBM 3250, the new refresh target - Textronix 4014, the new de facto standard

**Low cost stand-alone graphics**
IBM - Intelligent Systems Corp - Tektronix - Hewlett Packard

**New operator input devices**
LED touch panels - Voice recognition - Ultrasonics - Pressure pad

**Current applications**
Computer aided design & drafting - Map making - Medical and other image processing - Management information systems - Simulation - Service bureaux - Utility and process control

**What's the USA market?**
Who's selling what and for how much?

**The next few years**
New applications - New technology - New software - The custom work station

## SOFTWARE TOPICS

**Transformation re-visited**
Modelling transformations - Coordinates and axis independence - Vector-valued functions

**Emphasis on Viewing rather than Modelling**
Windows - Viewports - Normalized Device Coordinates - Viewing Transformations in two dimensions - Viewing Transformations in three dimensions

**Simplified view of hardware from the software point of view**
Simple and basic instructions to plot and draw - Hardware character generator for text

**Device and machine independence for transportable programs**

**Graphics Standards**
Importance of standards - History of standards activities - Report of U.S. activities, especially ACM's SIGGRAPH Graphics - Standards Planning Committee activity (GSPC)

**Review of some available graphics packages**
DISPLAA, GPGS, GINO-F, GCS, IG

**Description of SIGGRAPH's "GSPC Core"**
Primitives, Segments, Viewing Transformation, Input.

**Description of a device independent graphics package, DIGRAF, which follows SIGGRAPH's GSPC Core**
Illustration of Primitive - Illustration of Segment Control - Sample Programs - Discussion of adherence to FORTRAN Standards - Difficulties encountered - Operating System Dependencies - Transportability Problems

# MANAGEMENT CONSIDERATIONS IN BUYING GRAPHICS EQUIPMENT

**Cost performance trade-offs**

Acquisition of computer graphics presents the potential buyer with an almost bewildering assortment of choices. Where a decade ago, one could choose any computer graphic systems provided one was willing to spend upwards of 100,000 dollars, today, one is confronted with:

- a wide assortment of technology
- stand alone, turnkey, time-sharing, net working or distributed configurations
- software products
- broad applications spectrum
- justification and evaluation techniques
..... and prices ranging from under 2,000 dollars to more than 1 million dollars

This seminar is designed to provide guidance for managers considering the procurement of computer graphics. **For a more fruitful discussion, attendance will be limited to 30 partecipants.**

**Brief seminar outline**
Registration: 9:30-10.00 a.m. Wednesday 24 October 1979

SESSION 1 **What are the choices**

- stand alone versus host-terminal versus host-satellite
- storage versus stroke refresh versus raster
- pen plotter versus electro static plotter versus COM
- monochromatic versus color
- batch versus interactive
- standard versus custom
- other

SESSION 2 **What are the trade-offs**

- easy of use
- productivity
- cost
- other

SESSION 3 **Workshop/Discussion**

- How to identify a graphic application
- how to justify the application
- how to select the appropriate systems
- other

# COMPUTER GRAPHICS TODAY

22 - 24 October, 1979
GRAND HOTEL ELITE
Bologna, Italy

A SHORT COURSE PRESENTED BY
BERTRAM HERZOG and CARL MACHOVER

## COURSE LEADER
Bertram Herzog

Bertram Herzog is Professor of Electrical Engineering and Professor of Computer Science at the University of Colorado. Dr. Herzog is one of the international pioneers in the advancement of computer graphics. His industrial experience includes building construction, and for several years he managed the Engineering Methods Department at Ford's product research in the U.S. While at the University of Michigan, he has been a consultant to IBM, TRW, Roll Royce, and others. He frequently lectures in short courses on Computer Graphics. He was the guest editor of IEEE Proceedings for the Special Issue on Computer Graphics, April 1974. He is Co-Chairman of the ACM SIGGRAPH Graphics Standards Planning Committee.

## COMPUTER GRAPHIC TODAY

During the last two years there has been a considerable upsurge in interest in computer graphics. The subject, which led so much promise in the late 1960's and early 70's, is receiving new emphasis due to the impact of cheap microprocessors and their associated technology and the versatile graphics facility is becoming more readily available for engineers, designers, drafts-men, scientists and many others.
To reduce the high costs associated with application software several countries have gone so far as to propose certain software packages for consideration as a draft standard. The goal of writing device independent graphics software is practically, and nearly totally, achievable.

The seminar address the relevant technology and the recent developments in graphics software. It is intended as an update for those using computer graphics or planning to do so.
To facilitate discussion, a review of basic graphics topics will be part of the introductory portion of the seminar, followed by an implementation illustrating the latest concepts. Mathematical aspects of geometric modelling will not be overstressed, the aim being to revue the basic principles of geometric modelling and to describe the latest developments including a detailed presentation of device indipendent graphics software.

## COURSE NOTES

A set of notes will be distributed to the partecipants at the registration desk for reference to the course content.

## LOCATION AND ACCOMMODATION

The course will be held at the
GRAND HOTEL ELITE
Via Saffi, 36 - 40131 Bologna, Italy
Tel. (051) 437417, Telex 510067
A block booking of hotel rooms has been made in this hotel for the course participants. The Grand Hotel Elite is situated in central Bologna next to Porta San Felice and can be easily reached by public transportation.

## REGISTRATION

Please complete the registration form and mail it with your payment as soon as possible because of already experienced mail delays.
Registration fee is Lire 360,000. Make your check payable to the ACM Italian Chapter. The registration fee includes lunches, lecture notes and 14% IVA tax.
The Eurographic's '79 registration policy applies for cancellations.

# MANAGEMENT CONSIDERATIONS IN BUYING GRAPHICS EQUIPMENT COST
## COST PERFORMANCE TRADE-OFFS

Carl Machover

24 OCTOBER 1979
ROYAL HOTEL CARLTON
BOLOGNA, ITALY

AN INTENSIVE SEMINAR PRESENTED BY CARL MACHOVER TO A LIMITED AUDIENCE OF 30 ATTENDEES

## SEMINAR LEADER

Carl Machover is one of the world's leading specialist in computer graphics. He is President of Machover Associates Corporation, a firm of technical consultants specialising in this area, and Adjoint Professor of Computer Graphics at the Rensselaer Polytechnic Institute. Mr. Machover has been involved with computer graphics since its infancy and was, for many years, executive vice-president of Information Display Inc. He is consulting editor of the "Computer Display Review", Past President and fellow of the Society for Information Display (SID) and member of ACM, IEEE, AIDD, NSPE, Sigma Xi, Tau Beta Pi and Eta Kappa Nu. He has many publications to his credit and has lectured widely on computer graphics.

## LOCATION

The seminar will be held at the
HOTEL ROYAL CARLTON
Via Montebello, 8 – 40121 Bologna, Italy
Tel. (051) 554141 – Telex 510356 ROYALHOT I

## REGISTRATION

Registration fee is Lire 220,000. It includes lunch, seminar notes and 14% IVA tax. Please complete the registration form and mail it with your check made payable to the ACM Italian Chapter, The Eurographic's '79 registration policy applies for cancellations.

# DATA BASES AND DATA STRUCTURES FOR CAD GRAPHICS

23-24 October, 1979
GRAND HOTEL ELITE
Bologna, Italy

## DATA BASES AND DATA STRUCTURES FOR CAD GRAPHICS

There is no single solution to the relationship between Data Bases, Data Structures and the Graphics aspects of Computer Aided Design. This seminar addresses these problems and is intended to provide both the turnkey system user (or prospective user), the system designer and the engineer involved in the use of computer aided design graphics with knowledge to assist them in their respective tasks.

## COURSE OUTLINE

### INTRODUCTION

- data structures and graphics
- data bases
- CAD information flows

### GRAPHICS

- the relationship between the object description and the picture
- transforming data representations
- picture interaction & file updates

### DATA STRUCTURES

- lists, rings, pointers, trees & cascades
- adding attributes
- model limitations

### DATA BASES

- types and their merits
- centralisations vs distribution
- controlling access

### COMPLETE SYSTEMS

- linking the data base to the graphics
- system integrity
- adding related systems
- feasibility of standards in the near future

## SPEAKERS

FRANK M. LILLEHAGEN Mr. Lillehagen is CAD/CAM Research Manager at the Central Institute for Industrial Research (SI) in Oslo, Norway; a multidisciplinary research organization associated with the Royal Norwegian Council for Scientific and Industrial Research (NTNF).
Mr. Lillehagen joined SI in 1969 after receiving his B.Sc. in Electronics from the University of Strathclyde, Glasgow, U. K. He was chief programmer in the development of the data base system AUTOBAS, and the algorithmic design language ALKON, both major components of the internationally used ship design system AUTOKON.
In 1972 he went to the University of Utah, where he received a M. Sc. Winter 1974 he reinitiated SI's CAD/CAM engagement and is presently involved in the development of standardised functions, "building blocks", and methods and aids for safer and more economic development of CAD/CAM systems. He is a member of several national committees on CAD/CAM, of ACM SIGGRAPH and of IFIP WG 5.2 on CAD.

ERNEST A. WARMAN Dr. Warman is the Engineering Computer Manager of the Technical Computing Group at Perkins Engines Company in the research Centre of the group Engineering Division at Peterborough.
Dr. Warman initially qualified in Mechanical and Production Engineering also holds the degress of Master of Technology and PhD in Computer Science from Brunel University.
The results of his research work in computer aided design and process control, and their industrial realisation, have been widely published. He has also contributed chapters to several c. a. d. texts and extensively lectured on these subjects around the world.
Co-founder of Productivity International, and Editor of the CAD/CAM Digest, his professional activities include Chairmanship of IFIP WG 5.2, membership of IFIP TC5, the BCS, the Institution of Mechanical Engineers and their Computing Techniques Section, and the Institution of Production Engineers. He is also a member of the senior Editorial Board of the new IFIP Journal "COMPUTERS IN TECHNOLOGY".

## COURSE NOTES

A set of notes will be distributed to the partecipants at the registration desk for reference to the course content.

## LOCATION AND ACCOMMODATION

The course will be held at the
GRAND HOTEL ELITE
Via Saffi, 36 - 40131 Bologna, Italy
Tel. (051) 437417, Telex 510067
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## REGISTRATION

Please complete the registration form and mail it with your payment as soon as possible because of already experienced mail delays.
Registration fee is Lire 260,000. Make your check payable to the ACM Italian Chapter. The registration fee includes lunches, lecture notes and 14% IVA tax.
The Eurographics '79 registration policy applies for cancellations.

**REGISTRATION: 8.30 - 9.00 a. m. Tuesday 23 Octobre 1979**

# THE INDUSTRIAL SEMINAR AND THE EXHIBITION

In conjunction with the Scientific Program of the Conference, an Industrial Seminar will be held for presentation of papers related to the technical aspects of hardware and software products on display at the Exhibition. For submission of seminar's papers and booking of exhibition stands, contact Umberto Cugini, Organizing Committee Chairman.

**Exhibition Hours:**
25 October 1979 - 9.00 a.m. - 6.00 p.m.
26 October 1979 - 9.00 a.m. - 6.00 p.m.
27 October 1979 - 9.00 a.m. - 4.00 p.m.

## ACM Italian Chapter

### PROCEEDINGS OF THE SYMPOSIUM ON TECHNOLOGY FOR SELECTIVE DISSEMINATION OF INFORMATION
**8-10 September 1976**
Sponsored by the Italian Chapter of ACM in cooperation with the IEEE Computer Society's Technical Committee on Computer Communications, the symposium includes sessions on data networks, transmission technology, information systems, data management, user-oriented systems and interactive systems, and applications in education and humanities.
161 pages                                   Lire 12.000*

### DATA BASE MANAGEMENT SYSTEMS
**Course Notes, 26-28 June 1978**
This course notes cover technical and managerial aspects of Data Base Management Systems. The volume contains papers on Implementation of DBMS in the Enterprize (by E.H. Sibley), Distributed Data Base Systems (by H. Biller), Data Base Models and Systems (by G.M. Nijssen), Data Base Management Systems Techniques (by P.J.H. King), Semantic Models (by H. Biller), Data Base Generation (by D.C. Tsichritzis and F.H. Lockovsky), and The ANSI IX3I SPARC DBMS Framework (by D. Tsichritzis and A. Klug).
230 pages                                   Lire 15.000*

### PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON DATA BASE MANAGEMENT SYSTEMS
**29-30 June 1978**
The need for improved hardware and software technology for building, managing and using data bases is becoming every day more important in our society where complex decision-making processes increasingly require information stored in computer-processable data base. Sponsored by the ACM Italian Chapter in cooperation with AICA Gruppo di Lavoro su Ingegneria dei Sistemi Informativi and FAST, this conference proceedings includes papers on Data Base Models, Data Base Languages, Relational Systems, Distributed Data Bases, Data Base Architecture, Security Integrity and Optimization, and Applications.
315 pages                                   Lire 25.000*

### DISTRIBUTED DATA BASE AND DATA PROCESSING SYSTEMS
**Course Notes, 6 March 1979**
These course notes include two papers:
"The distributed information system: Its Architecture" (by E.H. Sibley) and on "Distributed data base technology: An Assessment" (by W.T. Hardgrave).
85 pages                                   Lire 10.000*

## PUBLICATIONS LIST

### INTERACTIVE TECHNIQUES IN COMPUTER AIDED DESIGN
**Conference Proceedings, 21-23 September 1978**
The conference focuses on the present state of the art of Computer Aided Design in an international context. Emphasis is given to the role of data base management systems in handling technical documentation and parts specifications, to the technological achievements in man-machine interaction and graphical communication, to the standardization in graphics software, to applications in civil, mechanical, chemical and electrical engineering, control systems and cartography, and to the educational aspects within industries and universities.
479 pages                                   Lire 25.000*

### INTRODUCTION TO CAD/CAM
**Course Notes, 18-20 September 1978**
Computer aided design and manufacturing (CAD/CAM) is accepted worldwide as the key to increasing industrial productivity. This course notes include papers on Introduction to CAD (by J. Allan), Modelling (by M. Sabin), Considerations for Selecting Turnkey CAD/CAM Systems (by J. Allan), New Trends in Numerical Control (by G. Olling), Numerical Control Interfaces (by G. Olling), Digital Control of Industrial Processes (by J. Hatvany), Production Scheduling and Control (by M. Sabin), Design of CAD/CAD Systems (by J. Hatvany), and CAD/CAM Management and Economics (by E. Warman).
131 pages                                   Lire 15.000*

### SATELLITE AND GROUND PACKED RADIO SYSTEMS: AN ALTERNATIVE FOR DATA COMMUNICATION NETWORKS
**Course Notes, 28-30 May 1979**
The aim of this seminar conducted by Norman Abramson and Luigi Fratta is to describe the potential uses of satellite and ground radio systems in data networks and to explain why they provide new dimensions of flexbility for advanced teleprocessing systems. After discussing the past and present status of data communication development, the technological and economic aspects of circuit switched, packet switched and packet broadcast networks are compared. The basic architectural properties of data networks using large number of small stations is also analyzed.
323 pages                                   Lire 35.000*

### ORDERING INFORMATION
ACM Italian Chapter publications can be ordered to:

ACM Italian Chapter
Casella Postale 17129
20100 Milano, Italy

*Billing and shipment costs to be added to the listed price

## PROGRAMME FOR ACCOMPANYING PERSONS

### SIGHTSEEING BOLOGNA

**26 October 1979 - Departure:** 9.30 a.m. from Royal Carlton Hotel.
Even a brief and interesting visit to the main monuments of Bologna must allow time for the churches of the Romanesque and Gothic periods, not to mention the Archiginnasio, the seat of the oldest University in Europe.

### GUIDED SHOPPING

This is mainly for the ladies. Bologna is the centre for numerous clothes and leather industries. Three firms have been chosen which produce shoes, dresses and suits. They are among the leading industries in this sector both in Italy and in Europe. It is stressed that at each visit time will be set aside for purchases. The number of participants will be limited on a first-come, first-serve basis.
**Giosuè Shoe -** For more than 10 years this shoe industry has exported its high quality production to many parts of Europe.
**Magli -** This is the biggest shoe and clothes industry in Bologna. It has branches all over the world and is the largest Italian exporter.
**Ritz -** This is an important industry in the clothes sector. It produces clothes both for men and women.

## POST CONFERENCE TOUR
### 28 October - 3 November 1979

Conference participants can enjoy this one-week guided tour of beatiful resorts in Central Italy by De Luxe coach proposed by KUONI travel agency.

Starting from Bologna on Sunday 28 October at 9.00 a.m. the tour will bring you to Pisa, Montecatini Terme, S. Geminiano, Siena, Perugia, Assisi, Florence, Orvieto, and Roma where the tour will end in the morning of 3 November. Partecipants leaving Italy will be transferred to Fiumicino Airport. Return to Bologna is also possible.

The fee of Lire 339,000 per person is based on 30 participants. It includes transportation by De Luxe coach with hostess, accommodation in twin rooms of class A hotels, local guides in the cities visited, lunches and dinners (beverages are extra) excepted the lunches on 31 October in Florence and on 2 November in Roma when, after the tour of the city with a local guide, partecipants will be free to go sightseeing on their own.

Reservation to the tour can be made not later than 12 October 1979 using the hotel reservation form.

For more details contact     KUONI Travel Agency
Via Montebello, 8
40121 BOLOGNA, Italy
Tel. (051) 551756/551501
Telex 211571 KUOBO I

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# Registration form
INTERNATIONAL CONFERENCE AND EXHIBITION
### EUROGRAPHICS 79
PALAZZO DEI CONGRESSI — BOLOGNA — ITALY

**25 - 27 OCTOBER 1979**

**Please reserve a delegate place for** _____

Mr _____
Ms       (first name)      (last name)

Affiliation _____

Address _____

_____ Phone n. _____ Telex _____

Signature _____ Date _____

Conference registration fee Lire 160,000    _____
     Lire 140,000 if payment arrives before
     27 August 1979

Conference Banquet Lire 25,000    _____

Registration fee for accompanying persons: L. 35,000   _____

Hotel Accommodation Deposit: Lire 40,000 per person   _____
(if paid together with the registration fee)

## PRE CONFERENCE SEMINARS

Computer Graphics Today (22 - 24 October 1979)   _____
     Lire 360,000 registration fee

Data Bases and Data Structures for CAD Graphics   _____
     (23-24 October 1979)
     Lire 260.000 registration fee

Management Considerations in Buying Graphics   _____
     Equipment (24 October 1979)
     Lire 220.000 registration fee

      for the total amount of Lire   _____

**Return to: ACM Italian Chapter**
          **Casella Postale 17129**
          **20100 Milano, Italy**

### HOTEL RESERVATION FORM

Please make hotel reservation as follows:
ROOM TYPE
☐ single   ☐ double   ☐ twin

HOTEL CATEGORY
☐ de luxe   ☐ cat. A   ☐ cat. B   ☐ cat. C

Date of arrival _____

Date of departure _____

Hotel accommodation deposit of L. 40,000 is inclosed, via International check.

Please reserve post conference tour space

for _____ person(s)
(Lire 339,000 per person are enclosed).

Signature _____ Date _____

Name _____

Address _____

_____

_____

_____

_____

**Return to: KUONI Travel Agency**
          **Via Montebello, 6**
          **40121 Bologna, Italy**

or to the ACM Italian Chapter if the hotel deposit is paid together with the registration fee.

**Lunch break**

## DATA BASES AND THEIR GRAPHICS INTERFACES
Chairman: F.M. Lillehagen, CIIR, Norway

**A DATA BASE SYSTEM FOR COMPUTER AIDED DESIGN, S. Gregory, MIT, USA**

**A SUBROUTINE INTERFACE BETWEEN CAD/CAM SOFTWARE AND CODASYL DBMS, W.E. Fisher, Philips, West Germany**

**VERBAL - A TEXT ORIENTED MODELLING AND DATA BASE MANAGEMENT SYSTEM, S. Sandlie, Consultant, Norway**

## SURFACE AND VOLUME MODELLING
Chairman: V. Nicolò, FIAT Research Center, Italy

**SPECIFYING ARBITRARY PLANAR SMOOTH CURVES FOR FAST DRAWING, P. Coueignoux, M. Hourdequin, Ecole National Superieure des Mines, France**

**AN INTERPOLATIVE SURFACE DEFINITION WITH AUTOMATIC DETERMINATION OF TANGENT AND TWIST VECTORS, L. Bickardt, Institute für Informatik, Kiel, West Germany**

**COMPUTER REPRESENTATION OF PARTS IN MECHANICAL ENGINEERING, G.T. Armstrong, M.S. Bloor, A. de Pennenston J.S. Swift, University of Leeds, U.K.**

**INTERACTIVE GRAPHICS ANALYSIS AND PRESENTATION OF THREE DIMENSIONAL SPACE DATA, R.R. Hartwing, IBM Heidelberg Scientific Center, West Germany**

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## Saturday 27 October 1979

## DISTRIBUTED GRAPHICS
Chairman: G. Krammer, Hungarian Academy of Sciences, Hungary

**THE DESIGN OF INTERACTIVE GRAPHIC PROTOCOLS, D.S.H. Rosenthal, University of Edinburgh, U.K.**

**DEVICE DRIVER INTERFACE FOR DECENTRALIZED DEVICE DRIVERS, J. Weiss, University of Vienna, Austria.**

## RASTER COLOR GRAPHICS
Chairman: R. Newell, Cambridge Interactive Systems, U.K.

**A PRACTICAL APPROACH TO COLOUR GRAPHICS COMPUTER TERMINALS, P. Connor, Tektronix International, Netherlands**

**TWO APPLICATIONS OF COLOR RASTER GRAPHICS, M.J. Newman, P.D. Crowhurst, Rutherford Laboratory, U.K.**

**AN APPROACH TO THE MODELLING OF LANDSCAPES, F. Martinez, IMAG, France**

**Lunch break**

## GRAPHICS APPLICATIONS
Chairman: E. Warman, Perkins Engines, U.K.

**AN INTERACTIVE CARTOGRAPHIC SYSTEM WITH LASER DISPLAY, A. Kranendonk, Dienst Informatieverwerking, Netherlands**

**SIDS - AN INTERACTIVE COLOR GRAPHICS SYSTEM FOR THE SYMBOLIC LAYOUT AND CHECKING OF MOS IC'S, D. Clary, R. Kirk, S. Sapiro, American Microsystems Inc. USA**

**TRAJECTORIES ATLAS GENERATION FOR COMPUTER AIDED LINKAGES DESIGN, A. Rossi, C.U. Galletti, E.I. Gianarotti, Università di Genova, Italy**

**APPRAISAL OF BUILDING SUB-SYSTEM, G. Parkins, J. Clarke, A. Aylword, M. Turnball, University of Strathclyde, and L. Lanig, Scottish Development Dept., U.K.**

## GRAPHICS APPLICATIONS PANEL
Chairman: J.J. Allan III, Southern Methodist University, USA

**Panelists: P. Dono, Naval Underwater System Center, USA**
**W.S. Mann, Gerber Scientific Instrument Corporation, USA**
**V.R. Pearl, US Army R&D Command, USA**

## REGISTRATION

Registration fee is Lire 160,000. Preregistration fee, if payment arrives before 27 August 1979, is Lire 140,000. Registration fee includes conference lunches, proceedings, and 14 per cent IVA tax. Make your check payable to the the ACM Italian Chapter. The registration fee for accompanying persons is Lire 35,000 and includes both attendance to the special program and to the banquet.

The registration fee must be paid in advance or at the registration desk. Bank transfers to be sent to the ACM Italian Chapter, account number 2613, Credito Romagnolo, Agenzia 4, Via IV Novembre 10, 40123 Bologna, Italy.

Because of the long transfer time of money orders, it is advised to pay by bank check.

To register, fill out the registration form and mail it with your payment to the Conference Secretariat as soon as possible because of already experienced mail delays. All registrations will be acknowledged. If you do not get an acknowledgement, please telex or telephone in case your registration has been delayed in the post.
Refunds due to cancellations received in writing three weeks or more before the event will be deducted a Lire 30.000 handling charge; otherwise the full fee will be charged but change of participant is welcome.

## CONFERENCE SECRETARIAT

c/o UMBERTO CUGINI
Istituto di Disegno
di Macchine
Politecnico di Milano
Piazza Leonardo da Vinci, 32
20133 MILANO, Italy
Tel: (021) 235651
Telex: 333467 POLIMI I

c/o GIORGIO VALLE
Istituto di Elettronica
Facoltà di Ingegneria
Università di Bologna
Viale Risorgimento, 2
40136 BOLOGNA, Italy
Tel: (051) 583660
Telex: 211634 INGBO I

## CONFERENCE LOCATION

The Congress Centre, Piazza della Costituzione 4, is situated 1 km east of central Bologna. By public transportation it can be reached with bus n. 12 and n. 28. The telephone number for use during the Conference is 051-503331.

## PROCEEDINGS

A preprint copy of the conference proceedings will be distributed at the conference. Extra copies of the EUROGRAPHICS '79 conference proceedings can be ordered to the ACM Italian Chapter.

## HOTEL ACCOMMODATION

A block booking of hotel rooms has been arranged for conference attendees. Indicative daily rates, which include services and taxes, are in the order of:

|  | Single | Double |
|---|---|---|
| Royal Hotel Carlton (de luxe) | 40,000 | 57,000 |
| Category A Hotels | 30,300 | 42,200 |
| Category B Hotels | 18,250 | 28,500 |
| Category C Hotels | 14,500 | 21,000 |

Hotel reservation can be made either through KUONI Travel Agency, Via Montebello, 6 - 40123 Bologna, Italy Tel. (051) 551501/551756 Telex 211571 KUOBO I or through the conference secretariat if the hotel deposit is paid together with the registration fee.

Please specify your accommodation request using the appropriate section in the registration form and enclose a hotel deposit of Lire 40,000. Should the specified category be full, rooms will be allocated in the nearest available category.

Rooms reserved without hotel deposit will be held untill 6 p.m.

Telephone or telex expenses and bank charges, if any, will be deducted from the hotel deposit.

## CONFERENCE BANQUET

The conference banquet will be held on Friday 26 October 1979 at 8 p.m. The banquet ticket will be charged Lire 25,000.

## PROGRAMME FOR ACCOMPANYING PERSONS

### SIGHTSEEING BOLOGNA

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### GUIDED SHOPPING

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### 28 October - 3 November 1979

Conference participants can enjoy this one-week guided tour of beatiful resorts in Central Italy by De Luxe coach proposed by KUONI travel agency.

Starting from Bologna on Sunday 28 October at 9.00 a.m. the tour will bring you to Pisa, Montecatini Terme, S. Geminiano, Siena, Perugia, Assisi, Florence, Orvieto, and Roma where the tour will end in the morning of 3 November. Partecipants leaving Italy will be transferred to Fiumicino Airport. Return to Bologna is also possible.

The fee of Lire 339,000 per person is based on 30 participants. It includes transportation by De Luxe coach with hostess, accommodation in twin rooms of class A hotels, local guides in the cities visited, lunches and dinners (beverages are extra) excepted the lunches on 31 October in Florence and on 2 November in Roma when, after the tour of the city with a local guide, partecipants will be free to go sightseeing on their own.

Reservation to the tour can be made not later than 12 October 1979 using the hotel reservation form.

For more details contact

KUONI Travel Agency
Via Montebello, 8
40121 BOLOGNA, Italy
Tel. (051) 551756/551501
Telex 211571 KUOBO I

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## Registration form

INTERNATIONAL CONFERENCE AND EXHIBITION
### EUROGRAPHICS 79

**25 - 27 OCTOBER 1979**

PALAZZO DEI CONGRESSI — BOLOGNA — ITALY

**Please reserve a delegate place for**

Mr
Ms _____
(first name)                    (last name)

Affiliation _____

Address _____

_____ Phone n. _____ Telex _____

Signature _____ Date _____

Conference registration fee Lire 160,000          _____
　　　　Lire 140,000 if payment arrives before
　　　　27 August 1979

Conference Banquet Lire 25,000                      _____

Registration fee for accompanying persons: L. 35,000  _____

Hotel Accommodation Deposit: Lire 40,000 per person  _____
(if paid together with the registration fee)

### PRE CONFERENCE SEMINARS

Computer Graphics Today (22 - 24 October 1979)     _____
　　　　Lire 360,000 registration fee

Data Bases and Data Structures for CAD Graphics    _____
　　　　(23-24 October 1979)
　　　　Lire 260.000 registration fee

Management Considerations in Buying Graphics       _____
　　　　Equipment (24 October 1979)
　　　　Lire 220.000 registration fee

　　　　　　　　for the total amount of Lire  _____

**Return to: ACM Italian Chapter
　　　　　　Casella Postale 17129
　　　　　　20100 Milano, Italy**

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### HOTEL RESERVATION FORM

Please make hotel reservation as follows:
ROOM TYPE
☐ single ☐ double ☐ twin

HOTEL CATEGORY
☐ de luxe  ☐ cat. A  ☐ cat. B  ☐ cat. C

Date of arrival _____

Date of departure _____

Hotel accommodation deposit of L. 40,000 is inclosed, via International check.

Please reserve post conference tour space

for _____ person(s)
(Lire 339,000 per person are enclosed).

Signature _____ Date _____

Name _____

Address _____

_____

_____

_____

_____

**Return to: KUONI Travel Agency
　　　　　　Via Montebello, 6
　　　　　　40121 Bologna, Italy**

or to the ACM Italian Chapter if the hotel deposit is paid together with the registration fee.